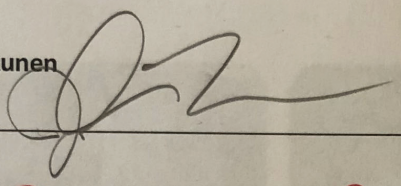
Richardson Creek Natural Area

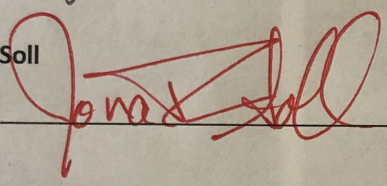
Approvals for Site Stewardship Plan

Date first routed: June 14, 2018

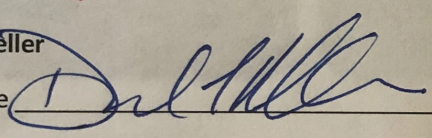
Justin Takkunen

Signature  Date 6/10/19

Jonathan Soll

Signature  Date 2/25/2020

Dan Moeller

Signature  Date 10/30/19

SITE STEWARDSHIP PLAN

Richardson Creek Natural Area



June 2018

Metro

Clean air and clean water do not stop at city limits or county lines. Neither does the need for jobs, a thriving economy, and sustainable transportation and living choices for people and businesses in the region. Voters have asked Metro to help with the challenges and opportunities that affect the 25 cities and three counties in the Portland metropolitan area.

A regional approach simply makes sense when it comes to providing services, operating venues and making decisions about how the region grows. Metro works with communities to support a resilient economy, keep nature close by and respond to a changing climate. Together, we're making a great place, now and for generations to come.

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RICHARDSON CREEK NATURAL AREA SITE INFORMATION

LOCATION

Address: 18600 SE Highway 224, Damascus, Oregon 97089

County: Clackamas

Number of acres: 82.4 acres

Metro file no.: 18.01

Table 1: Metro natural area bond purchased land for Richardson Creek Natural Area

PROPERTY NAME	FILE NO.	BOND YEAR	DATE ACQUIRED	MANAGEMENT	ACRES
Clackamas County	18.019	1995	09/12/2000	Metro	2.5
Calcagno	18.001	1995	08/07/2001	Metro	94.4

DIRECTIONS TO SITE

From Wankers Corner Field Station (2661 SW Borland Road, Tualatin, Oregon 97062):

- Head east on SW Borland Road and at the traffic circle take the first exit onto SW Stafford
- Turn left to merge onto I-205 N
- Take exit 10 and merge onto OR-213 South toward Oregon City/Molalla
- Slight right onto Washington Street; turn right to stay on Washington Street. At the traffic circle, continue straight onto S Clackamas River Drive.
- At Carver Bridge turn right and follow across bridge to Highway 224
- Turn right onto OR-224 E and follow for 1.4 miles to 18600 Highway 224 on the right side of the highway

See Map 1 for details.

SECTION 1: INTRODUCTION

1.1 CONTEXT

Richardson Creek Natural Area is located on the Clackamas River, a tributary to the Willamette River, at approximately river mile 9.2. The Clackamas River supplies drinking water to over 200,000 people and supports significant runs of federal and state listed fish species, including Chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*Oncorhynchus kisutch*), steelhead trout (*Oncorhynchus mykiss*), cutthroat trout (*Oncorhynchus clarkia*), bull trout (*Salvelinus confluentus*) and pacific lamprey (*Entosphenus tridentatus*). The natural area's native habitats include stream channels, floodplains and riparian and upland forests that support diverse populations of native fish and wildlife.

The Clackamas River Basin has been used by people for thousands of years. The Richardson Creek Natural Area is reported to be within the traditional territory of the Clackamas, a Chinookan-speaking tribe who lived on the Willamette River near Willamette Falls, along the Clackamas River, and on nearby tributary streams. French and English fur traders began to explore the area in the

early 1800s bringing diseases which decimated tribes in the Pacific Northwest. Oregon City was founded in 1829 at Willamette Falls to take advantage of the water power to run a lumber mill. Additional use of the area followed, including for transportation, commodity extraction, and human settlement.

Richardson Creek Natural Area is primarily situated on a floodplain complex, bounded by the Clackamas River on the southwest and Highway 224 on the north and east. A disconnected portion of the property is located on an island within the Clackamas River south of the main parcel. Another portion of property is disconnected and situated to the west of the main parcel. Richardson Creek bisects the northwest corner of the main natural area parcel. The headwaters of Richardson Creek rise along 222nd Avenue north of Highway 212, and the creek flows in a generally southwesterly direction to its confluence with the Clackamas River. Richardson Creek drains an area of approximately 4.2 square miles above its confluence with the Clackamas River. An unnamed tributary, which has been heavily altered and channelized, flows in an east-west direction bisecting the natural area. An existing excavated pond is located near the northern boundary of the main parcel. The western portion of the natural area is predominantly a mixed coniferous/deciduous riparian forest and the eastern portion is currently used for agricultural production. Metro acquired the Richardson Creek Natural Area in 2000-2001 through the Natural Areas Bond.

Ongoing restoration and coordinated management with neighboring conservation properties makes Richardson Creek a key natural area to support improved on-site habitat conditions and restored landscape connectivity. Utilizing funding from Metro's 2013 and 2018 Parks and Nature Levy and a grant from the Portland General Electric Clackamas Fund, a large scale restoration project will be implemented in the summer of 2018 to re-meander the straightened unnamed tributary, open floodplain berms, replace an undersized culvert, and install large woody debris on both the unnamed tributary and Richardson Creek. Re-vegetation utilizing native plants will follow the completion of construction in the winter of 2019.

See Map 2 for details.

1.2 SITE STEWARDSHIP PLAN GOALS AND USES

Site Stewardship Plans (SSPs) and Site Conservation Plans (SCPs) are sister documents. SCPs document conservation targets, desired future conditions, and key threats, providing a long-term vision for the site for internal and external audiences. Though rarely fully updated, SCPs are periodically revised to document strategic implementation and reflect on lessons learned through adaptive management. SCPs provide guidance for short- and long-term stewardship actions that the Natural Areas Land Management Team will take to reduce threats and increase conservation target health.

SSPs provide a five to ten-year outlook for ongoing care of a site, shaping a vision of options and costs to facilitate thoughtful decisions using available resources. SSPs are primarily an internal working document and address vegetation management, such as invasive species control, and infrastructure maintenance for items such as fences, gates, and water control structures. SSPs are updated periodically as key restoration or access and development projects are implemented.

This SSP provides information necessary to:

- Protect natural resources supporting wildlife habitat and water quality.
- Define key actions that help achieve desired future conditions of conservation targets.
- Define key actions required to maintain infrastructure.
- Provide cost estimates for actions.
- Prioritize actions and document implementation.

The major stewardship issues of concern at Richardson Creek Natural Area include:

- Invasive species management.
- Establishment of native vegetation to support large levy restoration projects.
- Monitoring for unauthorized access and encroachments and securing site access with fence and gate installations.

SECTION 2: CONSERVATION TARGETS AND DESIRED FUTURE CONDITIONS

2.1 MAJOR HABITAT TYPES

Richardson Creek Natural Area was historically comprised of red alder-mixed conifer riparian forest; likely containing combinations of red cedar (*Thuja plicata*), grand fir (*Abies grandis*), Douglas fir (*Pseudotsuga menziesii*) western hemlock (*Tsuga heterophylla*), bigleaf maple (*Acer macrophyllum*) and black cottonwood (*Populus trichocarpa*). More upland areas along the northern edge of the property were typically comprised of mesic mixed conifer forests with mostly deciduous understory. Dominant species likely included Douglas fir, western hemlock, red cedar, grand fir, bigleaf maple, Pacific yew (*Taxus brevifolia*), dogwood (*Cornus*), Oregon white oak (*Quercus garryana*) and red alder (*Alnus rubra*) (Christy et al., 2011). Today, Richardson Creek Natural Area can be characterized by three primary habitat and cover types: agriculture, riparian forest, and mixed upland forested areas (Table 2; Map 3). More detailed descriptions are available in the SCP.

Table 2: Major habitat types at Richardson Creek Natural Area

HABITAT TYPE	ACRES OR LINEAR FEET
Agriculture	30
Beaches, bars, and mudflats	1.2
Developed – pervious/non ag	1
Open water	5.2
Riparian forest	28.7
Upland forest – mixed	13.3
Upland forest – shrub stage	4.5
Total	83.9

2.2 CONSERVATION TARGETS

Conservation targets are composed of a suite of species, communities and ecological systems that represent and encompass the full array of native biodiversity of the site, reflect local and regional conservation goals and are viable or at least feasibly restorable. Using onsite natural habitat types and regional conservation planning efforts as guides, conservation targets were selected that encompass the site's biodiversity values and regional conservation targets. The targets at Richardson Creek Natural Area are:

- Riparian forest
- Upland forest
- Native fish

Appendix A summarizes the conservation targets, key ecological attributes, threats and strategic short- and long-term stewardship actions that can help address threats to these conservation targets. For more information, see the Site Conservation Plan.

It is important to prioritize restoration and stewardship activities for several reasons. Budgetary or time constraints are likely to limit how much work can be accomplished at a given site. Specific actions may rise to the top due to the scarce or unique nature of a habitat type or because abating a certain threat now will save time and money in the future. The SCP prioritizes conservation targets while Appendix B of this SSP assigns priority rankings to key actions; this does not mean that the other actions are not important, simply that they are not the most important actions within the next five to ten years.

2.3 SPECIAL OR SENSITIVE HABITAT

Some rare or special status species that may be found on, or approximate to the site may include pacific lamprey, western brook lamprey (*Lampetra fluviatilis*), coho salmon, steelhead, Chinook salmon, bull trout, northern red-legged frog (*Rana aurora*), western toad (*Anaxyrus boreas*), western pond turtle (*Actinemys marmorata*), willow flycatcher (*Empidonax traillii*) and western meadowlark (*Sturnella neglecta*). No rare plant surveys have been completed on site at this time. However, a cultural resource survey was completed in March of 2016 prior to the large levy restoration project and no sensitive areas were identified.

SECTION 3: STEWARDSHIP ACTIONS

Stewardship actions are broken up into five primary stewardship categories: site monitoring, vegetation management, access and infrastructure, water resources, and wildlife habitat as described below. Terramet includes the full list of stewardship categories, actions and tasks. Appendix B-1 describes strategic stewardship actions for each category needed over the next five to ten years, and Appendix B-2 provides a budget for these actions, as well as additional actions that may be warranted given sufficient time or funds.

3.1 SITE MONITORING

Monitoring at the Richardson Creek Natural Area is an integral part of an adaptive management approach to restoration and stewardship. Based on the monitoring plan developed by Metro, a feedback loop is created between monitoring and management decisions. Monitoring will be done to evaluate habitat, population responses to management action, as well as progress toward achieving habitat and population objectives.

Key monitoring actions at Richardson Creek Natural Area may include:

- Regular site walks to identify issues such as illegal access and inappropriate agricultural lease use.
- Inspect infrastructure – gates, fences, barn, road, signage, etc.
- Visual estimates of success of vegetation management actions.
- Early detection and rapid response (EDRR) surveys for "species of note."

3.2 VEGETATION MANAGEMENT

Key vegetation management actions for the next five to ten years at Richardson Creek Natural Area relate primarily to:

- Maintenance – treat priority invasive weeds including high priority weeds such as false brome (*Brachypodium sylvaticum*), garlic mustard (*Allaria petiolata),* Bohemian knotweed (*Fallopia x bohemicum*), yellow flag iris (*Iris psuedocorus*), blackberry (*Rubus bifrons*), Scots broom (*Cytisus scoparius*), ivy (*Hedera spp*.)*,* vinca (*Vinca minor*), clematis (*Clematis vitalba*), English holly (*Ilex aquifolium*), hawthorn (*Crataegus monogyna*) and other common agricultural weeds.
- Establishment of native species to support large restoration project including inter-planting as needed. See SCP for more details.
- Plant maintenance to include plant release/circle spray on 2019-2020 plantings in Metro units. Supports large restoration project. See SCP for more details

Many of these actions span multiple habitat areas and conservation targets.

Metro has initiated an early detection and rapid response (EDRR) program for certain invasive species. These EDRR species will be controlled by hand pulling or herbicide application as they are detected in the natural area. Other invasive plant species will be controlled as part of restoration projects or ongoing management of habitat areas. See Appendix C for a list of invasive species.

3.3 ACCESS AND INFRASTRUCTURE

Infrastructure generally includes human constructs such as maintenance roads, gates, fences, culverts, and signs. This category of stewardship actions may also include addressing property encroachments or surveying property lines. See Map 4 for spatial information on access and infrastructure at Richardson Creek Natural Area.

Key access and infrastructure actions at Richardson Creek Natural Area are:

- Maintain and repair fencing and gates on site – 2018 fence and gate installation on Highway 224 to control illegal activities. Wildlife specifications are considered and implemented on all fence installation and repairs.
- Inspect culvert and tire cleaning ditch.
- Maintain entrance road and parking area.
- Maintain site signage include agricultural lease boundary signs and natural areas rules signage.

3.4 WATER RESOURCES

Water resources stewardship actions are generally defined as maintenance of infrastructure associated with streams, rivers or wetlands at the site. Examples include maintenance of large wood structures, water control structures, or other water resource related actions and tasks.

- Key water resources actions at Richardson Creek Natural Area are defined in Site Conservation Plan and Implementation Plans for Large Restoration Projects in Levy 1.0 and 2.0.

3.5 WILDLIFE HABITAT

Wildlife habitat structures are specific features installed to improve wildlife habitat. Examples include nest boxes, turtle logs or platforms, beaver exclusion fencing and other associated wildlife related actions and tasks.

Key wildlife habitat actions at Richardson Creek Natural Area may include:

- Maintaining wildlife habitat in accordance with the Oregon Conservation Strategy's suggested conservation actions for observed strategy species at this site.
- Key wildlife habitat actions at Richardson Creek Natural Area are defined in Site Conservation Plan and Implementation Plans for Large Restoration Projects in Levy 1.0 and 2.0.

SECTION 4: COORDINATION

This Site Stewardship Plan outlines strategic development and restoration actions to be carried out at Richardson Creek Natural Area over the next five to ten years. These actions include natural resource, access, and infrastructure improvements that require implementation plans and communications between Land Management and Science staff about long-term stewardship costs. Implementation of these actions will have impacts to future stewardship and management of the site. This section is intended to identify actions that need additional coordination.

Actions that require coordination

- Agricultural lease management on site will require periodic access and communication between the property management, land management, and science teams, and the lessee farmers.
- Large restoration or development projects require implementation plans and conversations between Science & Stewardship and Land Management teams about long-term stewardship costs. These plans also need to be discussed with the Communications team for public outreach.

- Vegetation management – coordination regarding the control and treatment of non-native, invasive plant species; monitoring for the health of native vegetation.
- Richardson Creek invasive weed treatments are part of a larger partnership in the Clackamas basin known as the Clackamas River Invasive Species Partnership. Annual reporting and bi-annual meetings are required to communicate vegetation management activities as well as newly found invasive species on the site and throughout the basin.
- Riparian plantings installed and maintained by Clackamas River Basin Council (CRBC) will require coordination for the 2019 planting season and future coordination to transition this project back to Metro management.

Current and potential partners

- Calcagno Farms – leasing farmer.
- Clackamas River Invasive Species Partnership (CRISP) – Metro is coordinating a basin wide effort to control high priority invasive weeds with the CRISP. Annual reports of weed infestations and treatments are submitted and analyzed on a watershed wide scale.
- Clackamas River Basin Council (CRBC) – Metro is currently coordinating a riparian planting project at Richardson Creek with CRBC. Metro's Natural Resource Scientist has been managing this relationship and effort in conjunction with Natural Area's Land Management staff. Plantings began in 2018 and will be free to grow by 2023.
- Clackamas Soil and Water Conservation District – invasive species control coordination.
- Portland General Electric – project funder and partner on large levy restoration project.
- Clackamas County Planning and Development Services – building or demolition permits are required for removal of the existing residential structure and work within the managed floodplain areas and site access/right-of-way.
- Oregon Department of Forestry – regulate forest practices and burning.
- Oregon Department of State Lands – regulate removal-fill within waterways and general authorization to remove culvert.
- Oregon Department of Fish and Wildlife – consultation on in-water work to ensure fish passage criteria met.
- U.S. Army Corps of Engineers – federal section 404 or regional general permits covering any new fill placed in wetlands or waters, including restoration of ditched channels.

SECTION 5: VOLUNTEERS AND COMMUNITY ENGAGEMENT

The primary goal of the volunteer program is to provide a variety of high-quality, meaningful volunteer opportunities that add value and capacity to Metro's work. Through these opportunities, community members are able to learn about and enjoy Richardson Creek Natural Area, work alongside fellow community members, learn new skills or polish existing ones, and gain the satisfaction of contributing to the long-term health and livability of their communities.

For Richardson Creek Natural Area, strategic volunteer opportunities may include:

- After discussion, staff determined that volunteer opportunities for this site are not appropriate due to its status as an active large restoration site. This could be revisited at a later date.

SECTION 6: SITE MANAGEMENT

Metro's management of Richardson Creek Natural Area includes education and enforcement of the posted rules to protect wildlife and water quality and ensure the safety and enjoyment of any person visiting these facilities. The following sections describe key elements to management of the site.

6.1 FIRE INCIDENT ACTION PLAN

A fire incident action plan has been developed for this site (Appendix D, Map 5).

6.2 PUBLIC ACCESS

Richardson Creek Natural Area represents an important linkage between Clackamas Bluffs Natural Area and the Clackamas River floodplain. The site does not have any identified recreational uses and there is currently no formal master plan for public access and use. In 2018 a gate and fence will be installed to control public access and limit the potential for illegal uses. Access to the site is currently limited due to lack of on-site parking and trails. Access infrastructure is expected to remain primitive for the ten-year planning horizon. Farm field access roads are present off of Highway 224 and at the south end of the property, but the southern boundary is used only by the leasing farmer.

6.3 SPECIAL USE PERMITS

Special use permits (SUPs) are required for certain regulated and non-traditional uses of Metro's parks and natural areas to ensure public health and safety and to protect natural resources, properties and facilities.[1]

Current and historical SUPs for this site can be found in Terramet in the Site Documents section of the Richardson Creek Natural Area Docs & Agreements page. Current SUPs include:

- Oregon Department of Fish & Wildlife – fish survey along Richardson Creek.

6.4 DEED RESTRICTIONS, EASEMENTS AND OTHER SITE AGREEMENTS

The acquisition of a property under the Natural Area Program may sometimes include deed restrictions that place limitations on the use of the land. Deed restrictions can include restrictions on tree cutting, establish landscaping requirements, or establish road maintenance fees. Acquisitions may also include easements that entitle the holder to certain uses or rights on the property. Easements can include utility easements, easements of access, and conservation easements. Metro may enter into other voluntary agreements including intergovernmental agreements (IGAs) with other agencies and management agreements with non-governmental organizations.

[1] More information regarding policies, guidelines, and applications can be found at www.oregonmetro.gov/specialuse.

Existing deed restrictions, easements and other site agreements include:

Property 1 Calcagno (File #18.001)

- Rights of the public and government bodies in and to that portion of the property lying below the high water mark of the Clackamas River, Richardson's Branch, Lake Pigeon and an unnamed creek and pond.
- The rights of the public in and to that portion of the property located within the limits of roads and highways.
- Any adverse claims based upon the assertion that the Clackamas River including but not limited to that portion established by deed to State of Oregon by deed recorded 1/7/1980 and an unnamed creek have moved.
- Any adverse claim based on the assertion that any portion of the land was created by artificial means or has accreted to such portion so created. Rights established pursuant to ORS 274.905 to all or any portion of the property created by artificial means.
- Assignment of Water Rights dated 9/19/2000 permits the use of waters from the Clackamas River and Richardson Creek for irrigation supply not to exceed 2.0 cubic feet per second.
- Irrigation Pipeline Easement Agreement between Metro and Robert & Gretchen O'Brien dated 7/5/2007. Easement is for the benefit of Grantee and Grantee's employees, independent contractors, and agents and shall include the right to construct, build, install, lay, operate, maintain, repair, inspect, replace, and remove an irrigation pipeline with all appurtenances incident or necessary for the purposes of lawfully pumping and transferring water from the Clackamas River to the Dominant Estate, across the above-described strip of Servient Estate. The Dominant Estate may use the Easement or irrigation purposes only. The Dominant Estate shall not use the Easement in any way that would be detrimental to the Servient Estate or the Dominant Estate's water rights, or contrary to any law (including without limitation administrative miles). Except as to the rights herein granted, Grantor shall have full use and control of the Servient Estate.

Property 2 Clackamas County (File #18.019)

- None found on file. This property was a foreclosure and information is limited.

For more detailed information on any of the above agreements, please refer to the Terramet acquisition pages or the legal acquisition hard copy files for the properties that make up this site (Calcagno 18.001 and Clackamas County 18.019).

6.5 RESIDENTIAL OR AGRICULTURAL LEASE AGREEMENTS

Some Metro Natural Areas include a residence or multiple residences on the site. If and when it is decided to rent out a residence, a rental agreement is developed by Metro. This agreement describes the lease terms, any rental restrictions, and acceptable uses of the lease area. In some cases the lease area is delineated on the ground by installation of markers such as carsonite posts, t-posts, or fencing. Some standard lease terms include a month to month term, pet restrictions, no hunting, and no commercial activities.

Metro may enter into agricultural lease agreements when the acquisition comes with an existing agricultural lease, farming fulfills management goals, or the preservation of available agricultural land and historic farming practices is desired. The agricultural lease delineates the boundaries of the farmed area and can include specific requirements including crop planted, herbicides used, and equipment used.

Existing lease agreements (Map 6) include:

Residential

- The house and barn were removed in 2018 and Richardson Creek Natural Area has no residential lease agreements.

Agricultural

- Calcagno – Agricultural lease (contract #922445, Map 6) of 30 acres to 'lessee' effective 9/18/2000 and expiring 12/31/2018 with no auto renewability. A new lease or amendment will be needed by 10/31/18 with anticipated reduced acreage if there is an option to extend. In addition to the Agricultural lease, Metro holds a Certificate of Water Rights that allows diversion of water from the Clackamas River for irrigation of the agricultural lease area.

For more detailed information on any of the above leases, please refer to the Agreements section of the Terramet site page for Richardson Creek Natural Area or the Leases tab of the Terramet Administration Agreements page.

MAPS

Map 1 – Vicinity

Map 2 – Site

Map 3 – Current Cover

Map 4 – Site Infrastructure

Map 5 – Fire Incident Action Plan

Map 6 – Agricultural Lease/Residential Lease

APPENDICES

Appendix A – Summary of Conservation Target KEA, Threats, Goals

Appendix B – Stewardship Actions

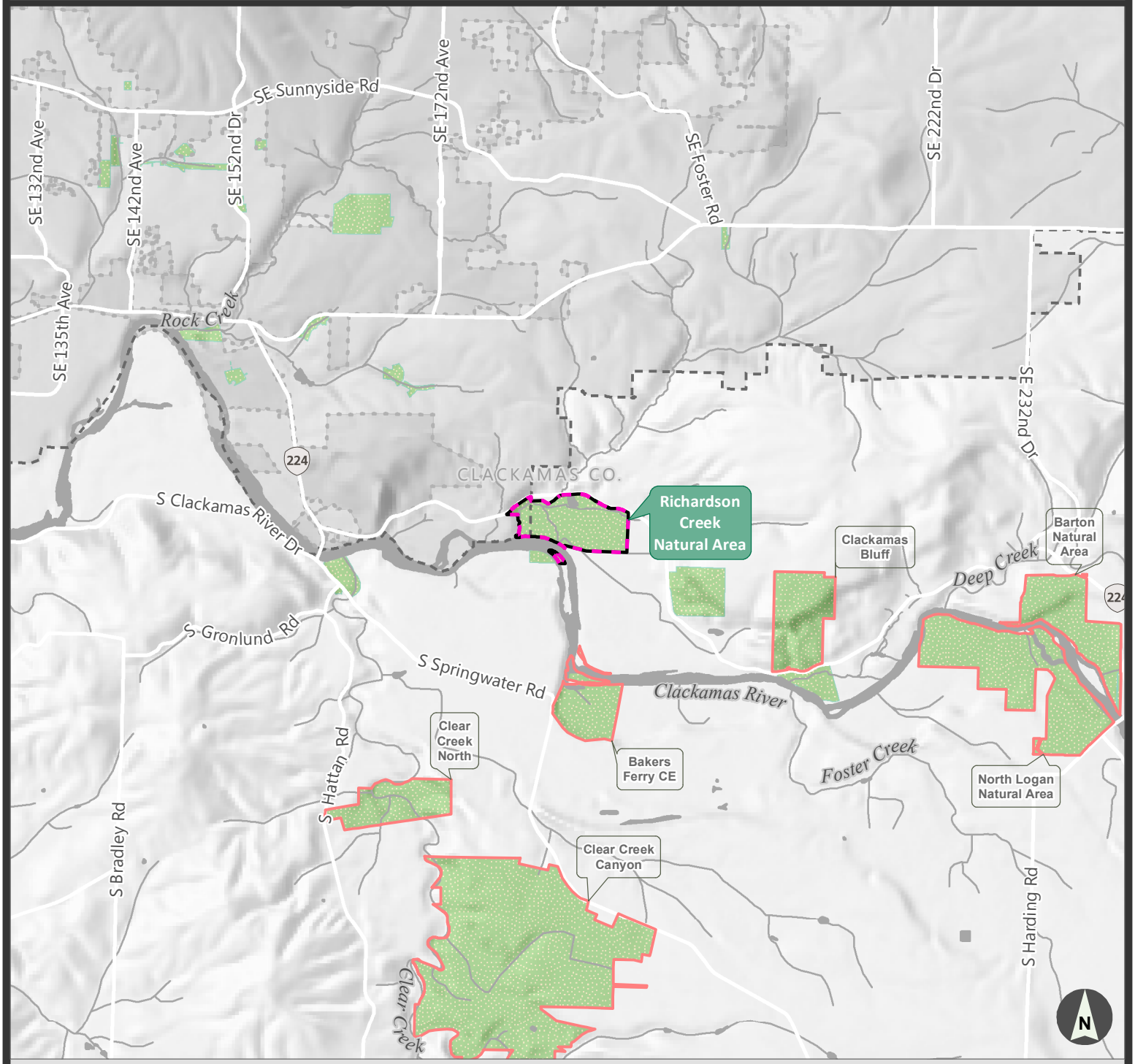
B-1 Summary of Stewardship Actions

B-2 Budget for Stewardship Actions

Appendix C – Invasive species

Appendix D – Incident Action Plan

Vicinity map



Richardson Creek Natural Area

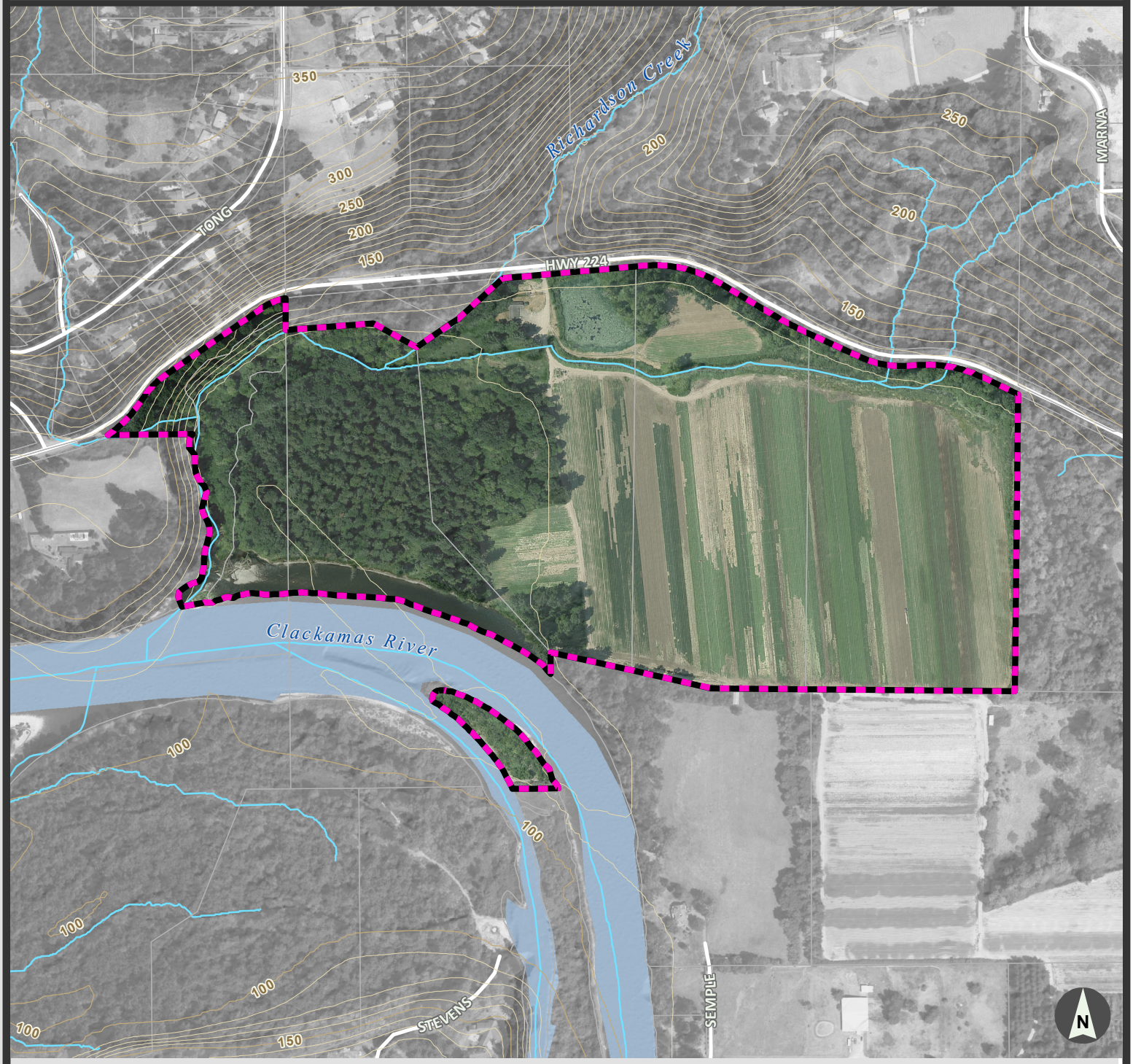
Other Metro sites

Parks and/or Natural Areas

0 0.3 0.6 0.9 1.2 Miles

Richardson Creek Natural Area

Site map



Richardson Creek Natural Area

Streams

0 0.04 0.08 0.12 0.16 Miles

Richardson Creek Natural Area

Imagery in color is a Metro Site

Metro Parks & Nature - map date: 4/24/2018

Current cover map

Site Stewardship Plan

Metro

Richardson Creek Natural Area site

Agriculture

Beaches, bars, and mudflats

Developed - (impervious)

Developed - (pervious/non ag)

Open water

Riparian forest

Upland forest - mixed

0 0.04 0.08 0.12 0.16 Miles

Some current cover may be outside of Site boundary with an agreement to manage it.

Richardson Creek Natural Area

Metro Parks & Nature - map date: 4/24/2018

Site infrastructure map

Site Stewardship Plan

Metro

Featured site

Road network on site

dirt/gravel

no attributte yet

Culvert

Pump House

gate

P parking

water source

Fence

0 0.04 0.08 0.12 0.16 Miles

Richardson Creek Natural Area

Imagery in color is a Metro Site

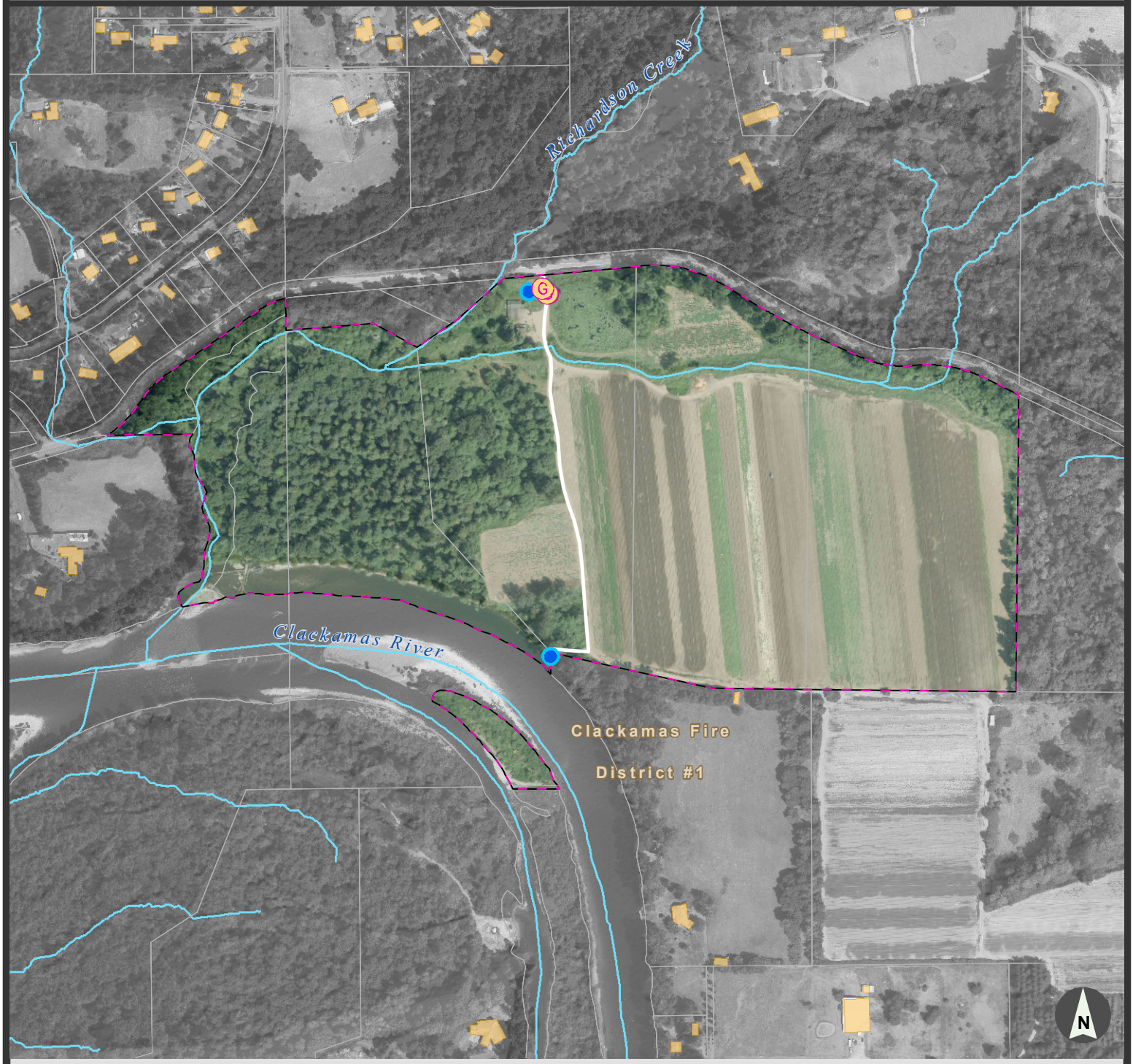
Metro Parks & Nature – map date: 4/24/2018

Fire Incident Action Plan

primary entrance: 18600 SE HWY 224, Damascus OR 97089

Site Stewardship Plan

Metro



Featured site

Roads

dirt/gravel

potential water source

gate

Structures

Fire districts

0 0.04 0.08 0.12 0.16 Miles

Richardson Creek Natural Area

lat/long for primary entrance: ((45.39747545, -122.47182907))

Metro Parks & Nature - map date: 5/21/2018

Agricultural lease area map

18600 SE Highway 224 Damascus, OR 97089

Site Stewardship Plan

Metro

Legend

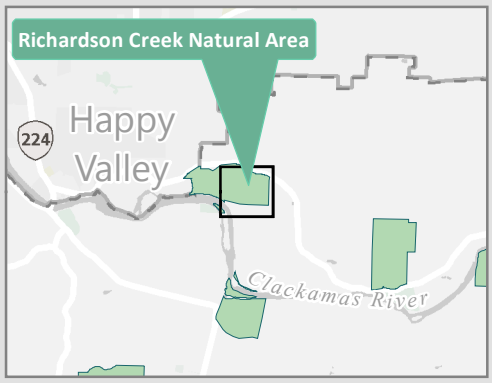
Featured Site

Lease area

N

1 inch = 250 feet

0 150



Richardson Creek Natural Area

Imagery in color is a Metro Agricultural lease

Metro Parks & Nature - map date: 4/24/2018

APPENDIX A

RICHARDSON CREEK NATURAL AREA

Conservation Target Summary Table for Richardson Creek Natural Area - summary of conservation target key ecological attributes (KEAs), significant threats, and long term goals and strategic restoration actions. The priority assignment refers to the habitat(s) in most immediate need of attention.

CONSERVATION TARGET	KEY ECOLOGICAL ATTRIBUTES (KEAs)	SIGNIFICANT THREATS	CURRENT KEA INDICATOR RATING	LONG TERM GOALS OR DESIRED FUTURE CONDITION	STRATEGIC RESTORATION AND STEWARDSHIP ACTIONS	PRIORITY
Riparian forest	Riparian forest width	Previous management prior to Metro ownership, land conversion.	Fair 15-30 m (50-100 ft.) each side of stream.	Good >61 m (200 ft.) each side of stream.	Vegetation enhancement, remove invasive blackberry, reed canary grass, butterfly bush and high priority EDRR species. Replant a diverse native tree and shrub community and maintain plantings until they are free to grow. Agricultural lease has also been adjusted to support the DFC.	High
	Vegetative structure: shrub layer	Invasive species, human disturbance, land conversion, climate change.	Fair 10-25% cover.	Very Good >50% cover.	Remove blackberry, ivy and other high priority noxious weeds and restore native shrub community; replant sections of farm field and Richardson Creek to restore wetland habitat and riparian along unnamed tributary and Richardson Creek.	High
	Mature trees	Previous forest management.	Fair <3 per acre with dbh >24 in.	Very Good >5 per ac with dbh >24 in.	Plant additional trees in riparian areas and remove invasive species such as ivy and clematis to promote tree health.	High
	Floodwater access to the floodplain; upstream habitat connectivity	Diking, filling, drainage, land conversion.	Poor Extensively disconnected by channel incision, dikes, tide gates, elevated culverts, etc.	Very Good Completely connected (backwater sloughs, channels).	Create openings in existing berm, locate and remove or break agricultural drain tiles to restore natural hydrology. Remove culvert blockage at farm access road crossing.	High
Upland forest	Mature trees	Previous forest management.	Fair <3 per a with dbh > 24in.	Very Good >5 per ac with dbh >24 in.	Plant additional trees in riparian areas and remove invasive species such as ivy and clematis to promote tree health.	Medium
	Vegetative structure: shrub layer	Invasive species, human disturbance, land conversion, climate change.	Fair 10-25% cover.	Very Good >50% cover.	Remove blackberry, ivy and other high priority noxious weeds and restore native shrub community; replant sections of farm field and Richardson Creek to restore wetland habitat and riparian along unnamed tributary and Richardson Creek.	Medium
	Standing and downed dead trees	Previous forest management, fire suppression.	Fair 5-11 snags and 5-10% down wood.	Very Good >18 snags and >20% cover down wood in a good variety of size and age classes.	Re-establish native understory trees and shrubs, snags and downed logs.	Medium
Native fish	Complexity of habitat	Diking, filling, drainage, land conversion, agricultural uses.	Poor Less than 2 habitat units.	Very Good Greater than 10 habitat units.	Continue invasive species treatments and native plantings and maintenance.	High
	Key pieces and number of pieces of large wood in wetted areas of the stream and adjacent stream bank	Land conversion, previous forest management.	Poor <10 large wood pieces and 0-1 key pieces.	Very Good >40 large wood pieces and >10 key pieces.	2018 large levy restoration project will address this issue by adding large wood to Richardson Creek and the unnamed tributary.	High
	Substrate in wetted areas of stream	Altered hydrology, human disturbance.	Poor Fines > 30% and gravel <10% of area.	Very Good Fines <10% and gravel >35% of area.	2018 large levy restoration project will promote sediment sorting and lead to deposition and scour around habitat features.	High
	Fish passage	Diking, filling, drainage, land conversion, agricultural uses.	Poor Complete blockage.	Very Good Passage open year-round.	Remove berms that limit floodplain connectivity. Relocate channels into historical alignments. Replace culvert blockage at farm access road crossing.	High
	Floodwater access to the floodplain	Diking, filling, drainage, land conversion, agricultural uses.	Poor Extensively disconnected by channel incision, dikes, tide gates, elevated culverts, etc.	Very Good Completely connected (backwater sloughs, channels).	Remove berms that limit floodplain connectivity. Relocate channels into historical alignments. Replace culvert blockage at farm access road crossing.	High

APPENDIX B-1

RICHARDSON CREEK NATURAL AREA SUMMARY OF STEWARDSHIP ACTIONS

Stewardship actions planned for the next five to ten years at Richardson Creek Natural Area.

(Estimated costs and potential additional actions that could take place, depending on time and resources, are in Appendix B-2)

PROJECT TYPE	DESCRIPTION	TIMING/FREQUENCY	COMPLETED BY
SITE MONITORING			
Vegetation monitoring - plantings	Monitor for plant mortality in Metro and CRBC planting units.	Fall 2019-2024	Natural Resource Technician/Natural Resource Specialist
Vegetation monitoring – invasive weeds	Early detection and rapid response (EDRR) surveys for "species of note."	Twice per year (at minimum)	Natural Resource Technician/Natural Resource Specialist
Other monitoring – site walk	Regular site walks to identify issues such as illegal access and inappropriate agricultural lease use.	Twice per year (at minimum)	Natural Resource Technician/Natural Resource Specialist
Other monitoring – site walk	Inspect infrastructure: gates, fences, road, signage, etc.	Four times per year	Natural Resource Technician/Natural Resource Specialist
VEGETATION MANAGEMENT			
Invasive weed control	Maintenance – treat priority invasive weeds including high priority weeds such as false brome, garlic mustard, Bohemian knotweed, yellow flag iris, blackberry, Scot's broom, ivy, vinca, clematis, English holly and hawthorn and other common agricultural weeds.	Three times per year or as needed	Contractor and oversight by Natural Resource Technician/Natural Resource Specialist
Planting – tree and shrub	Establishment of native species to support large restoration project including inter-planting as needed. See SCP for more details.	Winter 2019-2021 (January/February)	Contractor and oversight by Natural Resource Technician/Natural Resource Specialist
Planting – tree and shrub	Plant maintenance to include plant release/circle spray on 2019-2020 plantings in Metro units. Supports large restoration project. See SCP for more details.	Spring 2019-2023 until plants are free to grow	Contractor and oversight by Natural Resource Technician/Natural Resource Specialist
ACCESS AND INFRASTRUCTURE			
Fence/gates	Maintain and repair fencing and gates on site – 2018 fence and gate installation on Highway 224 to control illegal activities. Wildlife specifications are considered and implemented on all fence installation and repairs.	As needed	Natural Resource Technician/Natural Resource Specialist
Culvert	Inspect culvert and tire cleaning crossing and ditches.	Fall/Spring	Natural Resource Technician/Natural Resource Specialist
Road	Maintain road and parking area.	As needed	Natural Resource Technician/Natural Resource Specialist
Signage	Maintain site signage including natural area rules, agricultural lease boundary signs and natural areas rules signage.	Two times per year or as needed	Natural Resource Technician/Natural Resource Specialist

PROJECT TYPE	DESCRIPTION	TIMING/FREQUENCY	COMPLETED BY
WATER RESOURCES			
N/A	These items are defined in SCP and are restoration actions vs. stewardship actions.	See SCP	Scientist with support of Land Management Team
WILDLIFE HABITAT			
N/A	These items are defined in SCP and are restoration actions vs. stewardship actions.	See SCP	Scientist with support of Land Management Team

APPENDIX B-2

RICHARDSON CREEK NATURAL AREA BUDGET TABLE

10-year budget for stewardship actions

UNIT/AREA	MAINTENANCE CATEGORY	PROJECT TYPE	DESCRIPTION OF TASKS	HABITAT TYPE OR CONSERVATION TARGET	TIMING/ FREQUENCY	PRIORITY	COST BY FISCAL YEAR									
							FY17/18	FY18/19	FY19/20	FY20/21	FY21/22	FY22/23	FY23/24	FY24/25	FY25/26	FY26/27
Site wide	Vegetation management	Invasive weed control	Maintenance – treat priority invasive weeds including high priority weeds such as false brome, garlic mustard, Bohemian knotweed, yellow flag iris, blackberry, Scot's broom, ivy, vinca, clematis, English holly and hawthorn and other common agricultural weeds.	Riparian forest, upland forest	3 times per year or as needed	High	$6,600	$3,800	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000	$4,000
Entrance	Access and infrastructure	Fences/gates	2018 fence and gate installation on Highway 224 to control illegal activities. Wildlife specifications are considered and implemented on all fence installation and repairs.	Upland forest	Summer 2018	High	$7,800	$0	$0	$0	$0	$0	$0	$0	$0	$0
Totals							**$14,400**	**$3,800**	**$4,000**	**$4,000**	**$4,000**	**$4,000**	**$4,000**	**$4,000**	**$4,000**	**$4,000**

***It should be noted that all revegetation efforts on site are budgeted under the Large Levy Restoration Project. However, the NALM team will plan, implemenent and maintain the revegation portion of the project and this budget is not detailed in the SSP.**

APPENDIX C

RICHARDSON CREEK NATURAL AREA INVASIVE SPECIES

The table below summarizes a preliminary list of invasive plants in all or parts of Richardson Creek Natural Area, including focus areas and timing for control if needed. The list is compiled from the data collected during the 2014 weed mapping project, and reviewed and updated by the Natural Areas Land Management team. A list of noxious weeds for Oregon, including descriptions and photos, can be found at: www.oregon.gov/ODA/PLANT/WEEDS/statelist2.shtml.

Working list of priority non-native species at Richardson Creek Natural Area (EDRR species are bolded in red)

GENUS	SPECIES	COMMON NAME	FOCUS AREA FOR DETECTION/CONTROL	CONTROL TIMING
Alliaria	***petiolata***	**Garlic mustard**	**Riparian and upland forest**	**Spring/Fall**
Arum	*Italicum*	Italian arum	Riparian and upland forest	Winter/Spring
Brachypodium	***sylvaticum***	**False brome**	**Riparian and upland forest**	**Spring/Fall**
Calystegia	*sepium*	Hedge bindweed	Riparian and upland forest	Spring
Cirsium	*arvense*	Canada thistle	Riparian and upland forest	Spring
Cirsium	*vulgare*	Bull thistle	Riparian and upland forest	Spring
Clematis	*vitalba*	Old man's beard	Riparian and upland forest	Spring/Fall
Crataegus	*sp.*	Common hawthorn	Riparian and upland forest	Fall
Cytisus	*scoparius*	Scots broom	Riparian and upland forest	Spring
Digitalis	*purpurea*	Purple foxglove	Riparian and upland forest	Spring
Dipsacus	*fullonum*	Teasel	Riparian and upland forest	Spring
Geranium	*lucidum*	Shining geranium	Riparian and upland forest	Spring/Summer
Geranium	*robertianum*	Herb Robert geranium	Riparian and upland forest	Spring
Hedera	*sp.*	Ivy	Riparian and upland forest	Winter
Hesperis	*matronalis*	Dames rocket	Riparian and upland forest	Spring
Ilex	*aquifolium*	English holly	Riparian and upland forest	Fall
Iris	***pseudacorus***	**Yellow-flag iris**	**Riparian and upland forest**	**Spring/Fall**
Juglans	*sp.*	Walnut	Riparian and upland forest	Fall
Lychnis	*coronaria*	Rose campion	Riparian and upland forest	Spring
Phalaris	*arundinacea*	Reed canarygrass	Riparian and upland forest	Fall
Polygonum	***sp.***	**Knotweed**	**Riparian and upland forest**	**Summer**
Prunus	*avium*	Sweet cherry	Riparian and upland forest	Fall
Rubus	*bifrons*	Himalayan blackberry	Riparian and upland forest	Fall
Senecio	*jacobaea*	Tansy ragwort	Riparian and upland forest	Spring
Solanum	*dulcamara*	Bittersweet nightshade	Riparian and upland forest	Spring
Vinca	***minor***	**Periwinkle**	**Riparian and upland forest**	**Fall**

600 NE Grand Ave.
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oregonmetro.gov

Incident Action Plan

APPENDIX D

RICHARDSON CREEK NATURAL AREA

Address/access points

Address:

- 18600 SE Highway 224, Damascus, Oregon 97089

Primary Access (graveled road):

- 18600 SE Highway 224, Damascus, Oregon 97089
- Latitude: -122.471868; Longitude: 45.397561
- Gate – Metro A lock with chain; no Knox box or fire district lock at this time

Additional Access (no road, access by foot only):

- Access is approximately 250' east of Tong Road on the south side of Highway 224
- Latitude: -122.477801; Longitude: 45.396025
- Parking off Highway 224 allows for walk in access to NW corner of property on north side of Richardson Creek. Access is steep to reach riparian area.

Location

Primary Access:

- T02S-R03E SECT17

Acreage

82.40

Structures

The pump house is the only structure on site – Directly west of entrance

Water sources and staging areas

Water can be sourced from the Clackamas River near the water intake location for agricultural lease irrigation in the SW corner of the property. There is a developed road and cleared area in this location where a truck could pull down near the river's edge and pump water. There is also a pump house on site that could be considered for limited water needs. The parking area adjacent to the pump house could serve as a staging area.

Sensitive habitat

Riparian areas should be avoided as they provide key habitat for Salmon. This includes Richardson Creek and the unnamed tributary.

Contact information*

Metro Conservation Program

Justin Takkunen, Natural Areas Land Manager	503-964-2386 (cell)
Kristina Prosser, Natural Resource Specialist	971-678-4121 (cell)
Chris Hagel, Lead Natural Resource Specialist	971-242-9835 (cell)
Brian Vaughn, Natural Resource Scientist	503-830-8719 (cell)
Yuxing Zheng, Communications Coordinator	971-344-2207 (cell)

Sheriff/police department

Emergency	911
Police Dept, non-emergency	503-655-8211

Local fire department

Fire & Rescue Station #19 - Clackamas Fire District #1 503-742-2600

Tenants

Agricultural Lease

Ambrose Calcagno	503-519-4152
Jim Calcagno	509-793-8356

Mailing Address: 17031 S. Clackamas River Dr. Oregon City, OR 97045

**Please see Terramet for most up to date contact information.*